

We Claim:

1. A recombinant ZCCT1 protein coding sequence comprising a nucleic acid that hybridizes to a nucleic acid molecule encoding SEQ ID NO:75 under hybridization conditions that include at least one wash in 0.1 X SSC and 0.1% SDS at 60-65° for thirty minutes.
2. The recombinant ZCCT1 protein coding sequence of claim 1 wherein said sequence is operably linked to a heterologous promoter.
3. The recombinant ZCCT1 protein coding sequence of claim 3 wherein the heterologous promoter is an inducible promoter.
4. The recombinant ZCCT1 protein coding sequence of claim 3 wherein the heterologous promoter is a regulated promoter.
5. The recombinant ZCCT1 protein coding sequence of claim 3 wherein the heterologous promoter is a constitutive promoter.
6. A vector comprising the recombinant ZCCT1 protein coding sequence of claim 1.
7. A vector comprising the recombinant ZCCT1 protein coding sequence of claim 2.
8. A vector comprising the recombinant ZCCT1 protein coding sequence of claim 3.
9. A vector comprising the recombinant ZCCT1 protein coding sequence of claim 4.
10. A vector comprising the recombinant ZCCT1 protein coding sequence of claim 5.
11. A cell comprising the vector of claim 6.

12. A cell comprising the vector of claim 8.
13. A cell comprising the vector of claim 9.
14. The cell of claim 11 wherein said cell is a plant cell.
15. The cell of claim 12 wherein said cell is a plant cell.
16. The cell of claim 13 wherein said cell is a plant cell.
17. A transgenic plant comprising the recombinant ZCCT1 protein coding sequence of claim 1.
18. The transgenic plant of claim 17 wherein said plant is selected from the group consisting of wheat, barley, rye, oats, and forage grasses.
19. Seed from the transgenic plant of claim 17.
20. A transgenic plant comprising the recombinant ZCCT1 protein coding sequence of claim 3.
21. Seed from the transgenic plant of claim 20.
22. A transgenic plant comprising the recombinant ZCCT1 protein coding sequence of claim 4.
23. Seed from the transgenic plant of claim 22.
24. A method for altering a plant's response to vernalization, the method comprising: transforming a plant or plant tissue with a genetic construct comprising the recombinant ZCCT1 protein coding sequence as in claim 3 and inducing the expression of the genetic construct in said plant to alter said plant's response to vernalization.
25. A method for altering a plant's response to vernalization, the method comprising: transforming a plant or plant tissue with a genetic construct comprising the

recombinant ZCCT1 protein coding sequence as in claim 4 and expressing the genetic construct in said plant to alter said plant's response to vernalization.

26. The method of claim 24, wherein the plant is selected from the group consisting wheat, barley, rye, oats, and forage grasses.

27. The method of claim 25, wherein the plant is selected from the group consisting wheat, barley, rye, oats, and forage grasses.

28. A transgenic plant comprising a genetic construct that inhibits ZCCT1 repression of AP1.

29. The transgenic plant of claim 28 wherein the genetic construct is an RNAi construct that inhibits ZCCT1 activity.

30. The transgenic plant of claim 28 wherein the genetic construct comprises an antisense construct that inhibits ZCCT1 activity.

31. The transgenic plant of claim 28 wherein the genetic construct comprises a nucleic acid sequence encoding a repression defective ZCCT1 protein operably linked to a promoter.

32. The transgenic plant of claim 28 wherein the genetic construct comprises a nucleic acid sequence encoding a DNA binding defective ZCCT1 protein operably linked to a promoter.

33. A molecular marker for Vrn2 derived from SEQ ID NO:75.